



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/652,330	08/29/2003	Uri Elzur	13783US02	1614
23446 7590 10/16/2007 MCANDREWS HELD & MALLOY, LTD 500 WEST MADISON STREET SUITE 3400 CHICAGO, IL 60661			EXAMINER HOANG, HIEU T	
			ART UNIT 2152	PAPER NUMBER
			MAIL DATE 10/16/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/652,330

Applicant(s)

ELZUR ET AL.

Examiner

Hieu T. Hoang

Art Unit

2152

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08/29/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the communication filed on 09/26/2007.
2. Claims 1-35 are pending and presented for examination.
3. The terminal disclaimer filed on 09/26/2007 has been reviewed and accepted. The terminal disclaimer has been recorded. Therefore, the double patenting rejection of claims 18 and 26 is withdrawn.

Response to Arguments

4. Applicant's arguments have been fully considered but they are not persuasive.
5. Argument one is on page 11 of the Remarks wherein the applicant argues that the prior art does not teach: "an integrated chip". The examiner respectfully traverses. First, by the dictionary, an integrated chip or a chip is just an integrated circuits or a device consisting of a number of connected circuit elements, so a central processing unit can be read as an integrated chip. Therefore, Philbrick's processor can be well read on the claimed integrated chip. Second, the functions that the chip can support such as TCP/IP, iSCSI/RDMA... are not in the independent claim, therefore rendering the argument moot.
6. Argument two is on page 12 of the Remarks wherein the applicant argues that the prior art does not teach: "an Ethernet connector". The examiner respectfully traverses. First, by reciting: "comprising...an Ethernet connector," the claim does not exclude the possibility of using more than one Ethernet connector. Philbrick in fig. 16 and [0066], [0067] and [0106] shows four network connectors

Art Unit: 2152

for the purpose of supporting different conduits (such as twisted pair, coaxial cable or optical fiber), not for supporting each traffic on a different connector.

Furthermore, there is no need for Boucher's network interface card to have four network connectors for it to function. If one conduit is used alone, the connector is fully capable of communicating a plurality of network traffics as indicated in the third limitation of claim 1.

7. Argument three is on page 15 and 16 of the Remarks wherein the applicant argues that the prior art does not teach: "using a single fabric for a plurality of different types of traffic" and "handling the plurality of different types of traffic via a single layer 2 connector of the server". The examiner respectfully traverses. Refer to fig. 6 of Philbrick, there is a single path between a MAC controller 424 to a processor 408 on the INIC (intelligent network interface card 400). Clearly, processor 408 is on the INIC, not the server nor host 20; and the examiner did not infer that processor 408 is on the host. The claim recites: "using a single fabric," it neither states where from nor where to the fabric begins and ends. The claim preamble recites: "communicating with a server," however this detail is given no weight for it's just in the preamble of the claim. So any fabric supporting multiple traffics between any two points can be well read on this limitation, needless to say whether or not it is from the MAC controller to the INIC processor. The argument on PHY 422 and MAC 424 correspond to different LAN or SAN is moot. Once again, like in argument two above, Philbrick in fig. 16 and [0066], [0067] and [0106] shows four network connectors for the purpose of supporting different conduits (such as twisted pair, coaxial cable or optical fiber),

Art Unit: 2152

not for supporting each traffic on a different connector. Furthermore, there is no need for Boucher's network interface card to have four network connectors for it to function. If one conduit is used alone, the connector is fully capable of communicating a plurality of network traffics as indicated in limitation (b) of claim 26. For example, a single SAN connector can support iSCSI (first traffic) over TCP/IP (second traffic) (Philbrick, [0065] lines 15-17)

8. Argument four is on page 17 of the Remarks wherein the applicant argues that the prior art does not teach: "the single fabric comprises an Ethernet based fabric". This limitation is disclosed by Philbrick ([0065], lines 9-11, Ethernet based fabric). And as mentioned above, there is no need for Boucher's network interface card to have four network connectors for it to function. If one conduit is used alone, the connector is fully capable of communicating a plurality of network traffics as indicated in limitation (b) of claim 26. For example, a single SAN connector can support iSCSI (first traffic) over TCP/IP (second traffic) (Philbrick, [0065] lines 15-17)

9. Argument five is on page 20 wherein the applicant argues that the prior art AAPA-Philbrick does not teach: "at least one of the first server, the second server, and the third server handles a plurality of different traffic types over a single fabric". The examiner respectfully traverses. It is maintained as above that Philbrick does teach "a single fabric for a plurality of different types of traffic" applied to a NIC connected to a host or a server. Therefore, it would have been obvious for one skilled in the art at the time of the invention to see that the combination AAPA-Philbrick does teach "at least one of the first server, the

Art Unit: 2152

second server, and the third server handles a plurality of different traffic types over a single fabric.”

10. Argument six is on pages 22-23 wherein the applicant argues that the prior art Philbrick-Microsoft does not teach: “the same single fabric is used to access the cluster, the storage system and the network.” The examiner respectfully traverses. It is re-emphasized that no details description on the fabric is recited in the claims. Therefore, given its broadest interpretation, a fabric is a connection or a path between any two points of a system containing a NIC connecting to a host. Referring to [0033] of the specification, the cluster traffic is RDMA over TCP/IP. Microsoft teaches RDMA over TCP/IP in fig. 2, page 5 lines 7-8. The applicant seems to argue that RDMA traffic and TCP/IP traffic are separated in two paths by Microsoft. However, referring to fig. 15 of the specification, RDMA and TCP/IP are also separated in two paths and then merged by a Windows socket switch. Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Philbrick and Microsoft to further provide more functions such as RDMA support on an iSCSI-enabled NIC of Philbrick.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2152

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 18, 20, 22-29, 31 and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Philbrick et al. (US 2001/0037406, hereafter Philbrick).

13. For claim 18, Philbrick discloses a server, comprising:

- an integrated chip (fig. 6, processor 408);
- an Ethernet connector coupled to the integrated chip ([0066] lines 12-15, Ethernet connector 424 which is a MAC controller), wherein the Ethernet connector and the integrated chip can handle a plurality of different types of traffic ([0065] lines 15-21, iSCSI and TCP/IP).

14. For claim 20, Philbrick further discloses the server has a single Internet protocol (IP) address ([0053] IP address).

15. For claim 22, Philbrick further discloses the Ethernet connector handles the plurality of different types of traffic over a single fabric (fig. 6, single path from Ethernet connector 424 to processor 408).

16. For claim 23, Philbrick further discloses the Ethernet connector comprises a single Ethernet connector (fig. 6, single Ethernet connector 424).

17. For claim 24, Philbrick further discloses the integrated chip comprises a single integrated chip (fig. 6, single chip 408).

18. For claim 25, Philbrick further discloses the plurality of different types of traffic comprises at least two of network traffic, storage traffic, interprocess communication (IPC) traffic and cluster traffic ([0065] lines 15-21, network traffic TCP/IP and storage traffic iSCSI).

19. For claim 26, Philbrick discloses a method for communicating with a server, comprising:

(a) using a single fabric for a plurality of different types of traffic (fig. 6, single path from a Ethernet connector 424 to processor 408); and

(b) handling the plurality of different types of traffic via a single layer 2 (L2) connector of the server ([0065] lines 15-21, network traffic TCP/IP and storage traffic iSCSI).

20. For claim 27, Philbrick further discloses the single fabric comprises an Ethernet-based fabric ([0065], Ethernet-SCSI fabric).

21. For claim 28, Philbrick further discloses the single fabric comprises a transport protocol/network protocol-based fabric ([0065] lines 15-21, network traffic TCP/IP).

Art Unit: 2152

22. For claim 29, Philbrick further discloses (b) comprises accessing a storage device via the single L2 connector ([0065] lines 15-21, storage traffic iSCSI).

23. For claim 31, Philbrick further discloses (b) comprises accessing a network via the single L2 connector ([0065] lines 15-21, network traffic TCP/IP).

24. For claim 32, Philbrick further discloses (b) comprises handling the plurality of different types of traffic via an Ethernet connector of the server ([0065] lines 15-21, network traffic TCP/IP and storage traffic iSCSI).

Claim Rejections - 35 USC § 103

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

26. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (background of the invention and fig. 1-5, hereafter AAPA) and further in view of Philbrick.

27. For claim 1, AAPA discloses a data center, comprising:

- a first tier comprising a first server; a second tier coupled to the first tier, the second tier comprising a second server; and a third tier coupled to the second tier, the third tier comprising a third server (fig. 1, servers A, B, and C connected in three tiers)

AAPA does not disclose:

- wherein at least one of the first server, the second server and the third server handles a plurality of different traffic types over a single fabric.

However, Philbrick discloses:

- wherein at least one of the first server, the second server and the third server handles a plurality of different traffic types over a single fabric (fig. 6, a server handles iSCSI and TCP/IP over a single fabric connecting the Ethernet connector 424 and processor 408).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of AAPA and Philbrick to apply multiple traffic support over one fabric of Philbrick to the three-tier servers of AAPA to conserve resources (Philbrick, [0065], lines 1-4, storage traffic and network traffic without the need of a specialized connector).

28. For claim 2, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick further discloses the first server handles at least network traffic and

Art Unit: 2152

direct attached storage (DAS) traffic over the single fabric (Philbrick, [0065] lines 15-21, DAS traffic or SCSI).

29. For claim 3, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick further discloses the first server uses a single controller for handling at least network traffic and DAS traffic (Philbrick, fig. 6 single processor on a single intelligent network interface controller INIC).

30. For claim 4, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick further discloses the second server handles at least two of network traffic, storage traffic and cluster traffic over the single fabric (Philbrick, [0065] lines 15-21, network traffic TCP/IP and storage traffic iSCSI).

31. For claim 5, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick further discloses the second server uses a single controller for handling at least two of network traffic, storage traffic and cluster traffic (Philbrick, fig. 6, single processor on a single intelligent network interface controller INIC).

32. For claim 6, AAPA-Philbrick discloses the invention as in claim 5. AAPA-Philbrick further discloses storage traffic comprises traffic from a redundant-array-of-independent-disks (RAID) configuration or traffic from storage devices accessible via a network (Philbrick, [0011], RAID).

Art Unit: 2152

33. For claim 7, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick further discloses the second tier comprises an application tier (AAPA, [05] line 8).

34. For claim 8, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick further discloses the third server handles at least two of network traffic, storage traffic and cluster traffic over the single fabric (Philbrick, [0065] lines 15-21, network traffic TCP/IP and storage traffic iSCSI).

35. For claim 9, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick further discloses the third server uses a single controller for handling at least two of network traffic, storage traffic and cluster traffic (Philbrick, fig. 6, single processor on a single intelligent network interface controller INIC).

36. For claim 10, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick further discloses the single fabric is based upon a layer 2 (L2) protocol (Philbrick, fig. 6, single fabric has a MAC controller).

37. For claim 11, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick further discloses the single fabric is based upon an Ethernet (Philbrick, fig. 12, 13, Ethernet stack).

Art Unit: 2152

38. For claim 12, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick further discloses the single fabric is based upon a transport/network protocol (Philbrick, fig. 12, 13, TCP stack).

39. For claim 13, AAPA-Philbrick discloses the invention as in claim 12. AAPA-Philbrick further discloses the transport/network protocol comprises a transmission control protocol/Internet protocol (TCP/IP) (Philbrick, fig. 13, TCP/IP).

40. For claim 14, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick further discloses at least one of the first server, the second server and the third server uses an Internet small computer system interface (iSCSI) protocol in communicating with storage (Philbrick, [0065] line 19, iSCSI over TCP).

41. For claim 15, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick further discloses the iSCSI protocol runs on top of TCP/IP (Philbrick, [0065] line 19).

42. Claims 33-35, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Philbrick as applied to claim 26 above, and further in view of Microsoft (03/03/2001, Winsock Direct and Protocol Offload on SANs,

download.microsoft.com/download/1/6/1/161ba512-40e2-4cc9-843a-923143f3456c/WinsockDirect-ProtocolOffload.doc).

43. For claim 33, Philbrick discloses a method for communicating in a data center, comprising:

(a) accessing a storage system over a single fabric ([0065] lines 15-21, network traffic TCP/IP and storage traffic iSCSI);

(c) accessing a network over the single fabric ([0065] lines 15-21, network traffic TCP/IP and storage traffic iSCSI).

Philbrick does not explicitly disclose (b) accessing a cluster over the single fabric.

However, Microsoft discloses (b) accessing a cluster over the single fabric (fig. 2, page 5 lines 7-8, RDMA support for clustering traffic, RDMA running over TCP/IP).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Philbrick and Microsoft to further provide more functions such as RDMA support on a iSCSI enabled NIC of Philbrick.

44. For claim 30, the claim is rejected for the same rationale as in claim 33.

45. For claim 34, Philbrick-Microsoft discloses the invention as in claim 33. Philbrick-Microsoft further discloses (a), (b) and (c) are performed over a single

Art Unit: 2152

Ethernet connector of a server in the data center (Philbrick, fig. 6, single Ethernet connector 424).

46. For claim 35, Philbrick-Microsoft discloses the invention as in claim 33.

Philbrick-Microsoft further discloses the single Ethernet connector has a single Internet protocol (IP) address (Philbrick, [0053] IP address).

47. Claims 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA-Philbrick, as applied to claims 1 and 14 above, and further in view of Microsoft.

48. For claim 17, AAPA-Philbrick discloses the invention as in claim 1. AAPA-Philbrick does not disclose at least one of the first server, the second server and the third server uses an RDMA for interprocess communication.

However, Microsoft discloses (b) accessing a cluster over the single fabric (fig. 2, page 5 lines 7-8, RDMA support for clustering traffic, RDMA running over TCP/IP).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Philbrick and Microsoft to further provide more functions such as RDMA support on a iSCSI enabled NIC of Philbrick.

49. For claim 16, the claim is rejected for the same rationale as in claim 17.

50. Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Philbrick, in view of what has been known in the art.

51. For claim 19, Philbrick discloses the invention as in claim 18. Philbrick does not explicitly disclose the server comprises a blade server, and wherein the integrated chip is part of a blade mounted in the blade server.

However, it is well known that the server comprises a blade server, and wherein the integrated chip is part of a blade mounted in the blade server.

Therefore, it would have been obvious for one skilled in the art at the time of the invention to apply Philbrick to a blade server system to make use of advantages of a blade server system such as high space density.

52. For claim 21, the claim is rejected for the same rationale as in claim 19.

Conclusion

53. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory

Art Unit: 2152

action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

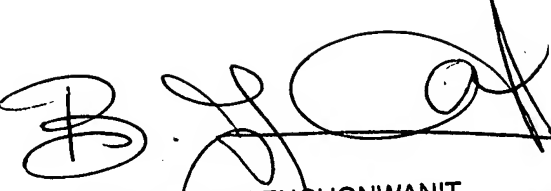
54. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hieu T. Hoang whose telephone number is 571-270-1253. The examiner can normally be reached on Monday-Thursday, 8 a.m.-5 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on 571-272-3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 2152

HH


BUNJOB JAROENCHONWANIT
SUPERVISORY PATENT EXAMINER

10/12/7